



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,300	06/30/2005	Yuji Ozawa	TIP 037	6632
23408 7590 04/11/2008 GARY C. COHN, PLLC P. O. Box 313 Huntingdon Valley, PA 19006				
EXAMINER WALTERS JR, ROBERT S				
ART UNIT		PAPER NUMBER		
4172				
NOTIFICATION DATE		DELIVERY MODE		
04/11/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

garycohn@seattlepatent.com

# Office Action Summary

**Application No.**

10/541,300

**Applicant(s)**

OZAWA ET AL.

**Examiner**

ROBERT S. WALTERS JR

**Art Unit**

4172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)  
Paper No(s)/Mail Date 1/16/07/1/17/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Application***

Claims 1-20 are pending and presented for examination.

### ***Foreign Priority***

It is noted that this application appears to claim subject matter disclosed in prior Application No. JP2003-301018, filed 8/26/2003. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(c) and/or 120, where

applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(c), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(c), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(c) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 12-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are drawn to adjusting said pH to said coating color without proceeding through a drying step, however the pH of said coating color is never explicitly stated, therefore, it is unclear what the pH is adjusted to and how this alleviates proceeding through a drying step.

Claims 1, 2, 6, 7, and 12-17 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims contain the phrase "and/or" thus the boundaries of the claims are not clearly stated as it is unclear whether the pigment contains both elements or just one of the elements. It is especially unclear in claims 7, 16, and 17 in which three elements potentially comprise the pigment.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 1 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. (U.S. Pat. No. 6312794) in view of Hayasaka et al. (U.S. Pat. No. 5972167).

Claim 1 is drawn to a method for manufacturing an inkjet recording medium comprising applying a coating containing a pigment and binder to at least one side of a base material using a transfer roll coater and then drying to form an ink absorbing layer with Hercules viscosity of 5 to 30 mPa·s and pigment contains synthetic silica having an oil absorption of 90 mL/100g to 200 mL/100g, a BET specific surface area of 45 m<sup>2</sup>/g to 200 m<sup>2</sup>/g and an average particle diameter of 1 to 3 μm. Since, the claim language states that and/or a calcium carbonate-silica composite may comprise the particle this limitation has not been considered in this and the future analysis.

Sekiguchi et al. describe a method of applying an ink receiving layer containing a synthetic silica having specific surface area preferably from 50 to 400 m<sup>2</sup>/g, an oil absorption of at least 30 mL/g, preferably at least 100 mL/g, and an average particle diameter of 0.1 to 30 μm (column 6, lines 28-34), which may contain a binder (column 7, lines 7-11), and may be applied by a roll coater (column 8, last paragraph), and subsequently dried (Examples 13-19). However, Sekiguchi et al. is silent on the Hercules viscosity of the resulting ink absorbing layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made that, for one, this viscosity would inherently be the same for the ink absorbing layer of Sekiguchi since the same component parts are used. Secondly, as further evidence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sekiguchi et al. with Hayasaka et al. as Hayasaka et al. teach using a transfer roll coater to coat a pigment and adhesive to a base material (abstract) wherein the coating has a Brookfield viscosity in the range of from about 100 to about 1500 cps (100-1500 mPa·s), see column 4, lines 49-51. Though they do not teach what the Hercules viscosity is, this Brookfield viscosity falls in the same area as the viscosity of the resulting coatings listed in the specification, therefore it will inherently have a similar Hercules viscosity, falling within the range of 5 to 30 mPa·s. One would have been motivated to modify Sekiguchi et al. with Hayasaka et al. as Hayasaka et al. actually state that the pigments used in the present invention are not particularly limited, provided that the aspect ratio is small, and can be used for transfer roll coating colors (column 5, lines 19-22), and the synthetic silica taught by Sekiguchi et al. would have been known to fall into this category at the time the invention was made.

Claims 8-10 are drawn to the method of claim 1 wherein transfer roll coater is a gate roll coater (claim 8), the coating weight of said ink absorbing layer per one side is  $2 \text{ g/m}^2$  to  $7 \text{ g/m}^2$  (claim 9), and coating color contains a cationic resin (claim 10). As discussed above, Sekiguchi et al. in view of Hayasaka et al. teach all the limitations of claim 1, and Sekiguchi et al. also teach using a gate roll coater for application of the coating (column 9, 1st line) to apply a coating of 3, 5, or  $7 \text{ g/m}^2$  (Table 3), and finally also teaches that a cationic dye fixing agent may be added appropriately (column 7, lines 42-49).

Claims 2, 3, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. in view of Hayasaka et al. and in further view of Wason et al. (U.S. Pat. No. 4191742).

Claims 2 and 3 are drawn to the method of claim 1 further limited in that the synthetic silica is obtained by wet grinding a synthetic slurry obtained by neutralizing an aqueous sodium silicate solution using a mineral acid (claim 2) or using aqueous aluminum sulfate (claim 3). As described above Sekiguchi et al. in view of Hayasaka et al. teach all of the limitations of the method of claim 1, however they are silent on the method of obtaining the synthetic silica. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sekiguchi et al. and Hayasaka et al. with Wason et al. because Wason et al. teaches a method of making synthetic silica comprising treating a sodium silicate solution with a sulfuric acid solution (mineral acid) (see Example 1) or with the additional use of aluminum sulfate (Example 2) to provide particles with an oil absorption of  $118 \text{ mL}/100\text{g}$ , surface area of



175 m<sup>2</sup>/g (Example 2) with the required size (see last column, Table 7). Wason et al. does not teach wet grinding the resulting slurry, however they teach milling the dry solid (column 9, last sentence) but it would have been obvious to one skilled in the art at the time of the invention that wet grinding of the slurry could be substituted at this point before drying, for further proof see Miyamoto et al. (U.S. Pat. No. 4460637, column 4, lines 36-52). One would have been motivated to modify Sekiguchi et al. and Hayasaka et al. with Wason et al. as it is well known in the art that synthetic silica regardless of its method of production is useful as a pigment in coating colors, see for example Sekiguchi et al. and Miyamota et al. (see column 4, lines 24-30).

Claims 18-20 are drawn to the method of claim 2 wherein the transfer roll coater is a gate roll coater (claim 8), the coating weight of said ink absorbing layer per one side is 2 g/m<sup>2</sup> to 7 g/m<sup>2</sup> (claim 9), and coating color contains a cationic resin (claim 10). As discussed above, Sekiguchi et al. in view of Hayasaka et al. and in further view of Wason et al. teach all the limitations of claim 2, and Sekiguchi et al. also teach using a gate roll coater for application of the coating (column 9, 1st line) to apply a coating of 3, 5, or 7 g/m<sup>2</sup> (Table 3), and finally also teaches that a cationic dye fixing agent may be added appropriately (column 7, lines 42-49).

Claims 4, 5, and 11 are rejected 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. in view of Hayasaka et al. and in further view of Yaguchi et al. (Japanese Pat. App. Pub. No. 61-118287). The claims are drawn to the method of claim 1 wherein the precipitated calcium carbonate-silica composite is obtained by mixing a precipitated calcium carbonate with an aqueous alkaline metal silicate solution and adjusting the pH of said mixture to 7-9 by adding a

mineral acid (claim 4), wherein the resulting solid content is 30/70 or 70/30 precipitated calcium carbonate to silica (claim 5 and 11). As discussed above Sekiguchi et al. in view of Hayasaka et al. teach all the limitations of claim 1. Also, as mentioned these limitations are being examined, however, according to claim 1 this is not an essential element of the formulation, as the claim states that it may or may not be contained in the pigment. Sekiguchi et al. and Hayasaka et al. are silent on the use or method of synthesis of the precipitated calcium carbonate-silica composite. However, it would have been obvious to one of ordinary skill in the art to modify Sekiguchi et al. and Hayasaka et al. with Yaguchi et al. which teaches preparing a composite particle by treating precipitated calcium carbonate from the reaction of CO<sub>2</sub> with calcium chloride or calcium hydroxide with sodium silicate (abstract), and likely monitoring the pH with CO<sub>2</sub> (a mineral acid could be substituted here to monitor pH, see Okada et al. (Japanese Pat. App. Pub. No. 11-107189)). These particles have a surface area of 100 m<sup>2</sup>/g and an oil absorption of 150 mL/100g, but the particle diameter and composition is not detailed. However, the size of the particles could be adjusted by grinding to fall in the range limited by claim 1 and since the method of synthesis is the same it is likely inherent that the weight percent of calcium carbonate to silica could be adjusted to fall in the specified range as limited in claims 5 and 11. One would have been motivated to modify Sekiguchi et al. and Hayasaka et al. with Yaguchi et al. as Yaguchi et al. state that these pigments may be useful as fillers for recording material. Alternatively, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges and arrive at the desired pigment structure through process optimization, since it has been held that where the general conditions of a claim

are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. in view of Hayasaka et al. and further in view of Freeman et al. (U.S. Pat. No. 6402824). Claim 7 is drawn to the method of claim 1 wherein the pigment contains synthetic silica and/or precipitated calcium carbonate-silica composite and a precipitated calcium carbonate having an average particle diameter of 0.2 to 1  $\mu\text{m}$ . In this case, there is an ambiguity about the scope of this claim as set forth above, so in this case, the claim limitation of a precipitated calcium carbonate-silica composite is not being considered. As stated above, all the limitations of claim 1 are taught by Sekiguchi et al. in view of Hayasaka et al. Sekiguchi et al. also teach that in their invention another conventionally known pigment may be incorporated in the ink receiving layer of the ink jet recording sheet of the present invention (column 6, lines 35-37), however they fail to explicitly teach a precipitated calcium carbonate of particle diameter 0.2 to 1  $\mu\text{m}$ . It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sekiguchi et al. and Hayasaka et al. with Freeman et al. as Freeman et al. teaches a precipitated calcium carbonate pigment of median particle size between approximately 0.25 to 2  $\mu\text{m}$  (claim 2). One would have been motivated to make this modification because Sekiguchi et al. state that another pigment may be incorporated and Freeman et al. state that there precipitate calcium carbonate slurries are particularly well-suited for paper coating applications (abstract).

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. in view of Hayasaka et al. and in further view of Wason et al. and further in view of Freeman et al. Claims 16 and 17 are drawn to the methods of claim 2 and claim 3 respectively wherein the pigment contains synthetic silica and/or precipitated calcium carbonate-silica composite and a precipitated calcium carbonate having an average particle diameter of 0.2 to 1  $\mu\text{m}$ . In this case, there is an ambiguity about the scope of this claim as set forth above, so in this case, the claim limitation of a precipitated calcium carbonate-silica composite is not being considered. As stated above, all the limitations of claims 2 and 3 are taught by Sekiguchi et al. in view of Hayasaka et al. and in further view of Wason et al. Sekiguchi et al. also teach that in their invention another conventionally known pigment may be incorporated in the ink receiving layer of the ink jet recording sheet of the present invention (column 6, lines 35-37), however they fail to explicitly teach a precipitated calcium carbonate of particle diameter 0.2 to 1  $\mu\text{m}$ . It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sekiguchi et al., Hayasaka et al., and Wason et al. with Freeman et al. as Freeman et al. teaches a precipitated calcium carbonate pigment of median particle size between approximately 0.25 to 2  $\mu\text{m}$  (claim 2). One would have been motivated to make this modification because Sekiguchi et al. state that another pigment may be incorporated and Freeman et al. state that there precipitate calcium carbonate slurries are particularly well-suited for paper coating applications (abstract).

***Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haverinen et al. (U.S. Pat. No. 6623555)

Tanabe et al. (Japanese Pat. App. Pub. No. 2001-247310)

Minayoshi et al. (U.S. Pat. No. 4725318)

Ogawa et al. (U.S. Pat. No. 5013603)

***Conclusion***

Claims 1-20 are pending.

Claims 1-20 are rejected.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT S. WALTERS JR whose telephone number is (571)270-5351. The examiner can normally be reached on Monday-Thursday, 6:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT S. WALTERS JR/  
April 1, 2008  
Examiner, Art Unit 4172

/Vickie Kim/  
Supervisory Patent Examiner, Art Unit 4172